Installation Instructions

Allen-Bradley

Compact I/O 1769-ADN DeviceNet Adapter

Cat. No. 1769-ADN Series B

Allen-Bradley · Rockwell Software **Rockwell Automation**

Important User Information

Solid-state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (publication SGI-1.1 available from your local Rockwell Automation sales office or online at http://www.rockwellautomation.com/literature/) describes some important differences between solid-state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid-state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

⚠	Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
⚠	Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard and recognize the consequences.
⚡	Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.
🔥	Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.

Environment and Enclosure

ATTENTION: This equipment is intended for use in a Pollution Degree 2 industrial environment, in overvoltage Category II applications (as defined in IEC publication 60664-1), at altitudes up to 2000 meters without derating.

ATTENTION: This equipment is considered Group 1, Class A industrial equipment according to IEC/CISPR Publication 11. Without appropriate precautions, there may be potential difficulties ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbance.

ATTENTION: This equipment is supplied as "open type" equipment. It must be mounted within an enclosure that is suitably designed for those specific environmental conditions that will be present and appropriately designed to prevent personal injury resulting from accessibility to live parts. The interior of the enclosure must be accessible only by the use of a tool. Subsequent sections of this publication may contain additional information regarding specific enclosure type ratings that are required to comply with certain product safety certifications.

**ATTENTION:** See NEMA Standards publication 250 and IEC publication 60529, as applicable, for explanations of the degrees of protection provided by different types of enclosure. Also, see the appropriate sections in this publication, as well as the Allen-Bradley publication 1770-4.1, Industrial Automation Wiring and Grounding Guidelines, for additional installation requirements pertaining to this equipment.

North American Hazardous Location Approval

The following information applies when operating this equipment in hazardous locations.	Informations sur l'utilisation de cet équipement en environnements dangereux.
Products marked "CL I, DIV 2, GP A, B, C, D" are suitable for use in Class I Division 2 Groups A, B, C, D, Hazardous Locations and nonhazardous locations only. Each product is supplied with markings on the rating nameplate indicating the hazardous location temperature code. When combining products within a system, the most adverse temperature code (lowest "T" number) may be used to help determine the overall temperature code of the system. Combinations of equipment in your system are subject to investigation by the local Authority Having Jurisdiction at the time of installation.	Les produits marqués "CL I, DIV 2, GP A, B, C, D" ne conviennent qu'à une utilisation en environnements de Classe I Division 2 Groupes A, B, C, D dangereux et non dangereux. Chaque produit est livré avec des marquages sur sa plaque d'identification qui indiquent le code de température pour les environnements dangereux. Lorsque plusieurs produits sont combinés dans un système, le code de température le plus défavorable (code de température le plus faible) peut être utilisé pour déterminer le code de température global du système. Les combinaisons d'équipements dans le système sont sujettes à inspection par les autorités locales qualifiées au moment de l'installation.
⚠ **WARNING:** **Explosion Hazard -** • Do not disconnect equipment unless power has been removed or the area is known to be nonhazardous. • Do not disconnect connections to this equipment unless power has been removed or the area is known to be nonhazardous. Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product. • Substitution of components may impair suitability for Class I, Division 2. • If this product contains batteries, they must only be changed in an area known to be nonhazardous.	⚠ **AVERTISSEMENT:** **Risque d'Explosion –** • Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher l'équipement. • Couper le courant ou s'assurer que l'environnement est classé non dangereux avant de débrancher les connecteurs. Fixer tous les connecteurs externes reliés à cet équipement à l'aide de vis, loquets coulissants, connecteurs filetés ou autres moyens fournis avec ce produit. • La substitution de composants peut rendre cet équipement inadapté à une utilisation en environnement de Classe I, Division 2. • S'assurer que l'environnement est classé non dangereux avant de changer les piles.

Compact I/O DeviceNet Adapter Description
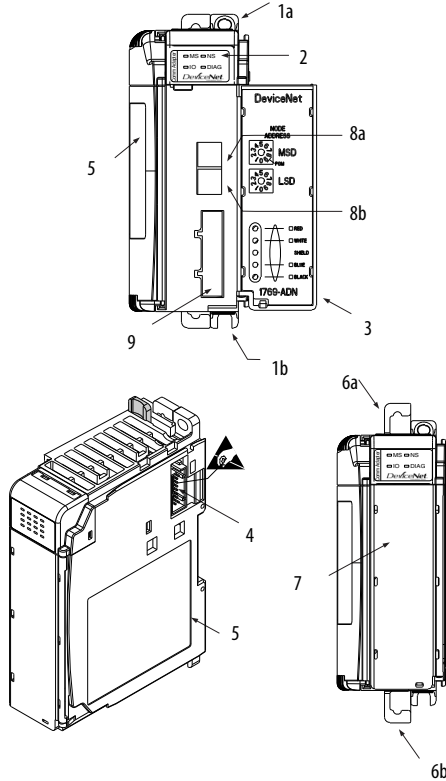
Item	Description	Item	Description
1a	Upper panel mounting tab	6a	Upper DIN-rail latch
1b	Lower panel mounting tab	6b	Lower DIN-rail latch
2	I/O diagnostic LEDs	7	Write-on label (user I.D. tag)
3	Module door with terminal identification label	8a	DeviceNet node address rotary selection switches - Most Significant Digit (MSD)
4	Stationary bus connector with male pins	8b	DeviceNet node address rotary selection switches - Least Significant Digit (LSD)
5	Nameplate label	9	Removable DeviceNet terminal connector

Prevent Electrostatic Discharge

ATTENTION: This equipment is sensitive to electrostatic discharge, which can cause internal damage and affect normal operation. Follow these guidelines when you handle this equipment:

- Touch a grounded object to discharge potential static.
- Wear an approved grounding wriststrap.
- Do not touch connectors or pins on component boards.
- Do not touch circuit components inside the equipment.
- If available, use a static-safe workstation.
- When not in use, store the equipment in appropriate static-safe packaging.

WARNING: If you insert or remove the module while backplane power is on, an electrical arc can occur. This could cause an explosion in hazardous location installations.

WARNING: Be sure that power is removed or the area is nonhazardous before proceeding.

WARNING: If you connect or disconnect the DeviceNet cable with power applied to this module or any device on the network, an electrical arc can occur. This could cause an explosion in hazardous location installations.

WARNING: Be sure that power is removed or the area is nonhazardous before proceeding.

System Configurations

Configuration Rules

- The adapter must be the first and left-most module in the system (the first module of Bank 1). Refer to page for an example configuration.

- The adapter can communicate with up to 30 modules in a system.

- An end cap/terminator must be on the last I/O bank.

- Each bank of I/O must have its own power supply.

- A bank of I/O can have a maximum of 16 modules with a maximum of eight on either side of the power supply, depending upon module loading on the supply.

- A 1769 I/O power supply has limits in the amount of +5V dc and +24V dc current it can supply to the modules in its I/O bank. These limits depend on the catalog number (for example, 1769-PA2) of the supply. A bank of modules should not exceed the current limits of the I/O bank power supply. Refer to the Compact 1769 Expansion I/O Power Supplies Installation Instructions, publication 1769-IN028.

- The maximum amount of current the system supports in one direction (either side of the power supply) is: 2A @ 5V dc, 1A @ 24V dc.

- If another bank of I/O is required due to module requirements or I/O loading, you can use a cable to link them together. You can have a maximum of three banks of I/O connected with up to two communication cables.

- Each module type has its own distance rating (the number of modules from the power supply). Each module must be within this rating for its type.

- The Series B adapter has a distance rating of five, therefore the Series B adapter must be within five modules of the power supply.

- The Series B adapter supports reading a maximum of 163-251 words (326-502 bytes) of input data distributed across all the modules, depending on the number of modules present in the system

  Use the following equation to calculate the maximum number of input words:

  Maximum Input Words = 256 - [(Number of Modules + 1) x 2 + Number of Output-Only Modules + 1]

  Where the "Number of Modules" is the total number of modules (input and output) in the system, and the "Number of Output Only Modules" is the number of output modules configured to have 0 words of input data.

  The maximum number of input words is distributed across all of the input modules.

- The Series B adapter supports a maximum of 196-254 words (392-508 bytes) of output data distributed across all of the modules, depending on the number of modules present in the system.

  Use the following equation to calculate the maximum number of output words:

  Maximum Output Words = 256 - [(Number of Output Modules) x 2]

Where the "Number of Output Modules" is the number of output modules configured to have 1 or more words of output data.

The maximum number of output words is distributed across all of the output modules.

- The Series B adapter supports a maximum of 254 words (508 bytes) of configuration data for each individual module, for a total capacity of 7,620 words (15,240 bytes). The configuration data is stored within 1 (64K) sector of the external flash part, enabling the maximum for each module to be supported, regardless of the number of modules.

- The Series A adapter supports a total of:

  - 180 words of input data from the I/O modules.

  - 180 words of output data from the I/O modules.

  - 724 words of configuration data for the I/O modules.

Example Configurations

The following illustrations show examples of two valid system setups.

Bank 1

| 1769-ADN | 1769 I/O | 1769 I/O | 1769 Power Supply | 1769 I/O | 1769 I/O | 1769 I/O | 1769 I/O | 1769-CRRx |

I/O Slot Number   1   2   3   4   5   6

Right-to-Right Cable

Bank 2

| 1769-CLLx | 1769 I/O | 1769 I/O | 1769 I/O | 1769 I/O | 1769 Power Supply | 1769 I/O | 1769 I/O | 1769-CRRx |

I/O Slot Number   7   8   9   10   11   12

Left-to-Left Cable

Bank 3

| 1769-CLLx | 1769 I/O | 1769 I/O | 1769 Power Supply | 1769 I/O | 1769 I/O | 1769 I/O | 1769 I/O | 1769 I/O | 1769 Right End Cap |

I/O Slot Number   13   14   15   16   17   18   19   20

Bank 1

| 1769-ADN | 1769 I/O | 1769 I/O | 1769 Power Supply | 1769-CRLx |

Bank 2

| 1769-CRLx | 1769 I/O | 1769 Power Supply | 1769 I/O | 1769-CRLx |

Bank 3

| 1769-CRLx | 1769 I/O | 1769 Power Supply | 1769 I/O | 1769 Right End Cap |

I/O Slot Number   1   2   3   4   5   6

**Right-to-Left Cable**   **Right-to-Left Cable**

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TIP   I/O modules are not required between either the adapter and an end cap or between the power supply and an end cap.

System Assembly

The adapter can be attached to adjacent 1769 modules **before** or **after** mounting.

- For mounting instructions, see Panel Mounting on page 11, or DIN Rail Mounting on page 12.
- To work with a system that is already mounted, see Replacing the 1769-ADN within a System on page 13.

The following procedure shows you how to assemble the Compact I/O™ system.
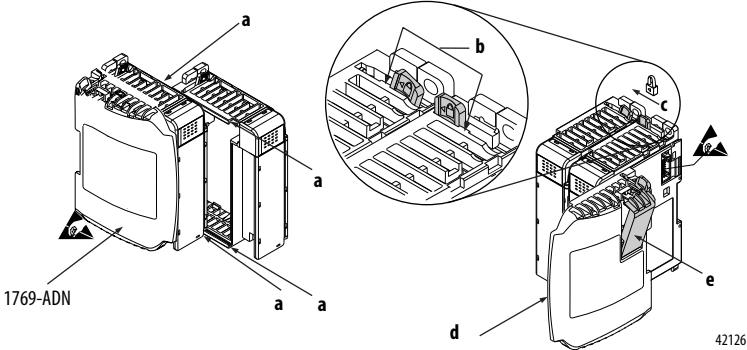
1. Disconnect power.

2. Check that the bus lever of the module to the right of the 1769-ADN is in the unlocked (fully right) position.

3. Use the upper and lower tongue-and-groove slots (**a**) to secure the modules together.

4. Move the module back along the tongue-and-groove slots until the bus connectors line up with each other.

5. Push the bus lever of the module to the right of the 1769-ADN back slightly to clear the positioning tab (**b**) using your fingers or a small screwdriver.

6. To allow communication between the adapter and I/O modules, move the bus lever of the module to the right of the 1769-ADN fully to the left (**c**) until it clicks. Make sure it is locked firmly into place.

> ⚠ **ATTENTION:** When attaching a 1769-ADN adapter, it is very important that the bus connectors are securely locked together to create a proper electrical connection.

7. Attach an end cap terminator (**d**) to the last I/O module in the system by using the tongue-and-groove slots as before.

8. Lock the end cap bus terminator (**e**).

> **IMPORTANT**   A 1769-ECR or 1769-ECL right or left end cap must be used to terminate the end of the serial communication bus.

9. See DeviceNet Wiring on page 16.

Mounting the Adapter and I/O Modules

⚠️ **ATTENTION:** During panel or DIN rail mounting of all devices, be sure that all debris (metal chips, wire strands, etc.) is kept from falling into the adapter or modules. Debris that falls into the adapter or modules could cause damage on power up.

Minimum Spacing

Maintain spacing from enclosure walls, wireways, adjacent equipment, etc. Allow 50mm (2in) of space on all sides for adequate ventilation, as shown:
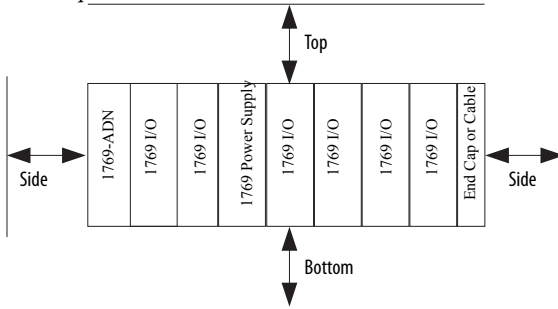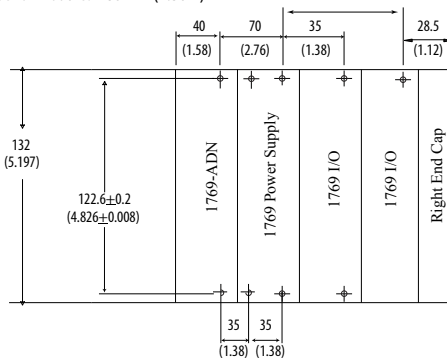

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Panel Mounting

Mount the adapter or module to a panel using two screws per adapter or module. Use M4 or #8 panhead screws. Mounting screws are required on every module. This figure illustrates panel mounting using the dimensional template.

For more than 1 module: Number of modules x 35mm (1.38in)

Hole spacing tolerance: ±0.4mm (0.016in).

mm (in)

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Panel Mounting Procedure Using Modules as a Template

The following procedure allows you to use the assembled adapter and modules as a template for drilling holes in the panel. If you have sophisticated panel mounting equipment, you can use the dimensional template provided on page 11.

Due to the module mounting hole tolerance, it is important to follow these procedures:

1. On a clean work surface, assemble no more than three modules.

2. Using the assembled modules as a template, carefully mark the center of all module-mounting holes on the panel.

3. Return the assembled modules to the clean work surface, including any previously mounted modules.

4. Drill and tap the mounting holes for the recommended M4 or #8 screw.

5. Place the modules back on the panel and check for proper hole alignment.

6. Attach the modules to the panel using the mounting screws.

TIP	If mounting more modules, mount only the last one of this group and put the others aside. This reduces remounting time during drilling and tapping of the next group.

7. Repeat steps 1 through 6 for any remaining modules.

DIN Rail Mounting

The adapter can be mounted using the following DIN rails:

- 35 x 7.5mm (EN50022 - 35 x 7.5)
- 35 x 15mm (EN 50022 - 35 x 15)

Before mounting the module on a DIN rail, close the DIN rail latches. Press the DIN rail mounting area of the module against the DIN rail. The latches will momentarily open and lock into place.

⚠️	**ATTENTION:** This product is grounded through the DIN rail to chassis ground. Use zinc plated yellow-chromate steel DIN rail to assure proper grounding. The use of other DIN rail materials, for example, aluminum and plastic, that can corrode, oxidize, or are poor conductors, can result in improper or intermittent grounding.

Replacing the 1769-ADN within a System

Same Series Replacement

When replacing an adapter with another adapter of the same series, you may need to use RSNetWorx™ for DeviceNet software to change the minor firmware revision if the adapter's electronic keying option is set to Exact Match. If Exact Match keying is selected for the adapter and the replacement adapter's minor revision is different than the original adapter's revision, then the scanner's ADR feature (if in use) will not be able to automatically configure the new adapter.

For more information, refer to the Compact I/O 1769-ADN DeviceNet Adapter User Manual, publication 1769-UM001.

Different Series Replacement

To use a Series B adapter as a direct replacement for a Series A adapter, the following actions must be taken:

- It is recommended that you upgrade to RSNetWorx 4.01 (or later) to be able to take advantage of the new features and capabilities of the Series B adapter, or to continue using your older version of RSNetWorx (minimum of v2.23), install the alternate EDS file[1] to enable it to recognize the Series B replacement (new features and capabilities are not available until you upgrade).

- The electronic keying options in your existing scanner and adapter configurations must be set to Compatible (or equivalent).

- If ADR is not configured or usable in your system, make sure that your existing adapters' configurations are saved in RSNetWorx for DeviceNet software (*.dnt) data files.

If your application permits the use of ADR, changing the settings to Compatible should be done at the earliest opportunity (i.e. prior to the need for replacement) to ensure that the ADR function operates as expected when a Series B must be installed as a replacement for a Series A adapter. If either the Series A adapter's or scanner's electronic keying is set to Exact Match, the scanner's ADR feature does not automatically configure the replacement Series B adapter.

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(1)   The alternate EDS file is required for versions of RSNetWorx for DeviceNet software prior to version 4.01. The standard EDS file available for the Series B adapter is compatible only with version 4.01 (or later) of RSNetWorx for DeviceNet software. The alternate EDS file is available through the Rockwell Automation Knowledge Base, http://www.rockwellautomation.com/support.

RSNetWorx version 4.01 (or later) provides an updated configuration GUI with expanded functionality for Series B adapters. When a Series B adapter is used to replace a Series A adapter, this version of RSNetWorx converts the Series A adapter configuration information into the format required by the Series B adapter after following these steps:

1. Upgrade your version of RSNetWorx to version 4.01 or later.

2. Open up the RSNetWorx file (*.dnt) that contains the Series A adapter's configuration. If no previously saved RSNetWorx file is available, go online with the Series A adapter and upload it's configuration and save it.

3. Replace the Series A adapter with the Series B adapter following the steps on page 15.

4. Go online with RSNetWorx and browse the network.

   RSNetWorx reports that there is a mismatch for the node address where the adapter was replaced.

5. Double-click on the mismatched/replaced node.

6. Choose OK when asked to resolve the mismatch.

   RSNetWorx updates the configuration and display the adapter's General tab on its property page, as noted in the message log window.

7. Choose the Module Configuration tab.

8. Choose Download to apply the configuration from the original Series A adapter to the Series B adapter.

   > **TIP** If you choose Upload, the replacement adapter's current state is uploaded, resulting in the loss of the original Series A adapter's configuration.

- For more information on setting adapter s electronic keying options, refer to the 1769-ADN User Manual, publication 1769-UM001 or the RSNetWorx for DeviceNet software online help.

- For more information on setting the scanner's electronic keying options, refer to the scanner's User Manual, publication 1769-UM009 or the RSNetWorx for DeviceNet software online help.

- For more information on how to register the special EDS file with your older version of RSNetWorx for DeviceNet software using the EDS Wizard, consult the RSNetWorx for DeviceNet software online help.

Steps to Replace the Adapter

The adapter can be replaced while the system is mounted to a panel (or DIN rail).

1. Remove power. See important note on page 6.

2. Remove the DeviceNet cable from the module by removing the connector.

3. Remove the upper and lower mounting screws from the adapter (or open the DIN latches using a flat-blade or phillips-style screwdriver).

4. On the right-side adjacent module, move its bus lever to the right (unlock) to disconnect it from the adapter being removed.

5. Gently slide the disconnected adapter forward.

   If you feel excessive resistance, make sure that you disconnected the adapter from the bus and that you removed both mounting screws (or opened the DIN latches).

 | **TIP** | It may be necessary to rock the module slightly from front to back to remove it, or, in a panel-mounted system, to loosen the screws of adjacent modules. |
   |---|---|

6. Before installing the replacement adapter, be sure that the bus lever on the right-side adjacent module is in the unlocked (fully right) position.

7. Slide the replacement adapter into the open slot.

8. Connect the adapter and modules together by locking (fully left) the bus levers on the right-side adjacent module.

9. Replace the mounting screws (or snap the adapter onto the DIN rail).

10. Replace the DeviceNet cable on the module by attaching the connector to the module.

11. Set the network address switches to the same value as the removed adapter.

Field Wiring Connections

Grounding the Adapter

This product is intended to be mounted to a well-grounded mounting surface such as a metal panel. Additional grounding connections from the adapter's mounting tabs or DIN rail (if used), are not required unless you cannot ground the mounting surface. Refer to Industrial Automation Wiring and Grounding Guidelines, publication <u>1770-4.1</u>, for additional information.
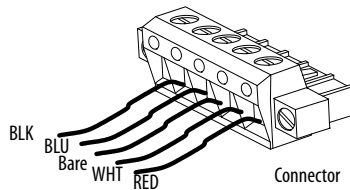
DeviceNet Wiring
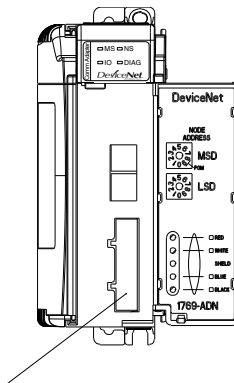
DeviceNet Connector

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1. Connect the DeviceNet cable to the removable connector as shown.

Connect	To
BLK Wire	-V
BLU Wire	CAN Low
Bare Wire	Drain
WHT Wire	CAN High
RED Wire	+V

BLK
BLU
Bare WHT RED   Connector

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2. Insert the removable female connector into the mating male connector on the DeviceNet adapter module.

3. Screw the removable connector to the adapter case with the upper and lower mounting screws. Screw torque is 5-6 in-lbs.

TIP	DeviceNet cable colors are shown on the wiring label on the front of the adapter.
	Note: A 10-pin linear plug, for example, 1787-PLUG10R),does not fit. Use a 1799-DNETCON or -DNETSCON.

| **IMPORTANT**	If the 1769-ADN is the last device connected to the DeviceNet network trunkline, be sure to add or move the termination resistor (Allen-Bradley® part number 1485A-C2 or a 120Ω 5% or > ¼W resistor) across the Blue (CAN Low) and White (CAN High) wires. We recommend 121Ω 1% ¼W metal film.

Setting the Network Address Switches

Set the network address with the two rotary switches. Use a small, slotted screwdriver to set the switches. The switch labeled MSD (Most Significant Digit) sets the 10s while the switch labeled LSD (Least Significant Digit) sets the 1s.

Valid network addresses are 00 through 63. Switch settings from 00 to 63 select network addresses 00 to 63. Switch settings from 64 to 99 instruct the adapter to use the software programmed value for the network address.

Switch setting 95 is reserved for factory use in Series B adapters.

The software programmed value is set via RSNetWorx for DeviceNet software Node Commissioning Tool and stored in non-volatile memory on the 1769-ADN. The initial, factory-preset setting of the software programmed value is 63.
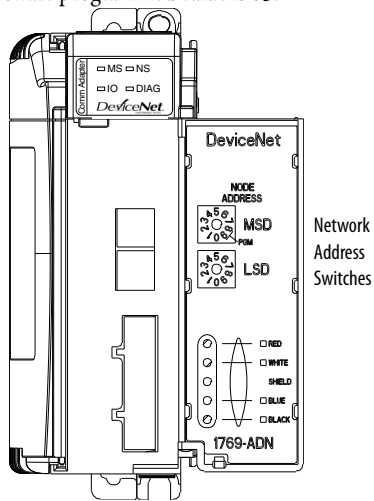
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| TIP | The baud rate for the adapter is set by way of the module's automatic "auto baud" function at power-up. |

Use the removable, write-on label to mark your I.D. tag, etc. with permanent ink. Your markings are visible when the module door is closed.

| TIP | Series B adapters that have their node address switches set to 95 startup in a special factory mode that does not support I/O connections. Series B adapters should **not** have their node address set to 95 for normal use. |

Configuring the 1769-ADN Series B Adapter

The 1769-ADN must be configured with RSNetWorx for DeviceNet software. This configuration tool allows you to identify all of the devices (I/O modules, power supplies, expansion cables, end caps) and their locations in your 1769 system. The 1769-ADN must have the I/O configuration loaded into its' memory to perform the network communication function.

The 1769-ADN does not accept I/O connections if the programmed system configuration does not match the actual system configuration. The 1769-ADN retains the programmed system configuration in non-volatile memory so it can compare it with the actual system configuration on power-up. For more information, refer to the Compact I/O 1769-ADN DeviceNet Adapter User Manual, publication 1769-UM001.

I/O Memory Mapping

Output Data

This is the I/O data the DeviceNet master sends to the 1769-ADN. All outputs are in words. For more information, refer to the Compact I/O 1769-ADN DeviceNet Adapter User Manual publication 1769-UM001.

Word	Bit Position															
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
0	Output data for slot 1*															
1	"															
"	"															
n	Output data for slot 30*															

* = The amount of output data for each module is based on the configuration of each I/O module done as part of the 1769-ADN configuration. Note that if an I/O module is configured to have 0 words of output data, then there are no output data words for that module in the 1769-ADN's output image.

Input Data

This is the I/O data the 1769-ADN sends to the DeviceNet master. All inputs are in words. For more information, refer to the Compact I/O 1769-ADN DeviceNet Adapter User Manual, publication 1769-UM001.

Word	Bit Position															
	15	**14**	**13**	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
0	V16	V15	V14	V13	V12	V11	V10	V9	V8	V7	V6	V5	V4	V3	V2	V1
1	X	NS	V30	V29	V28	V27	V26	V25	V24	V23	V22	V21	V20	V19	V18	V17
2	Input data for slot 1*															
3	"															
"	"															
n	Input data for slot 30*															

* = The amount of input data for each module is based on the configuration of each I/O module done as part of the 1769-ADN configuration. Note that if an I/O module is configured to have 0 words of input data, then there are no input data words for that module in the 1769-ADN's input image.

V1 = Data invalid from slot 1 (1 = invalid data)

V2 = Data invalid from slot 2

V3 = Data invalid from slot 3

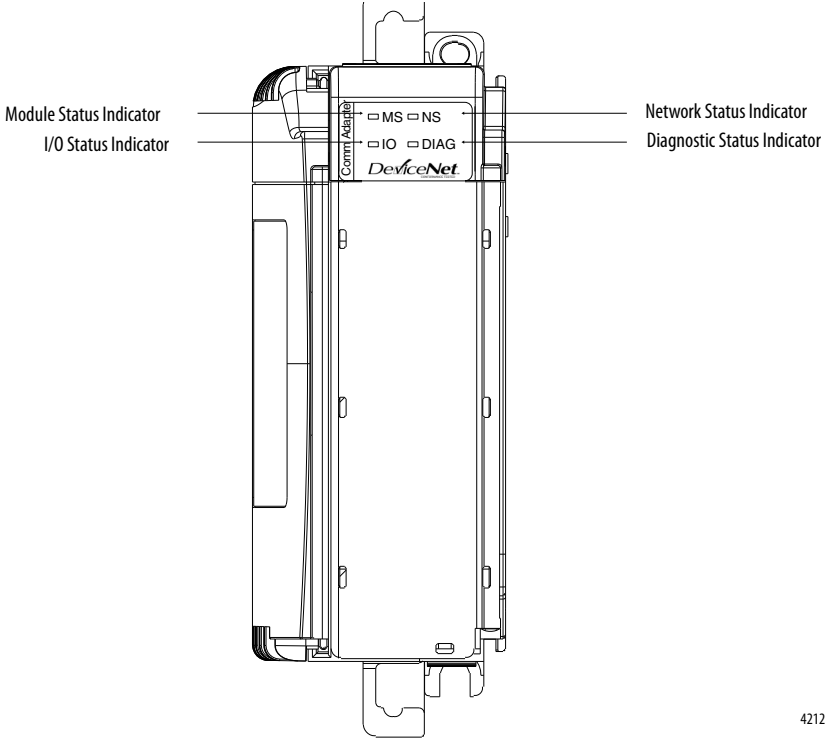...

V30 = Data invalid from slot 30
   where 1 = data invalid or a module error is detected; 0 = data valid, no module error

NS = Node address switch changed
   where 1 = node address switch changed since power-up

X = Reserved

Diagnostic Indicators

Module Status Indicator

I/O Status Indicator

Network Status Indicator

Diagnostic Status Indicator

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Status Indicators	Meaning
Module Status (MS)	
OFF	No power
Flashing GRN/OFF	On-line but configuration missing
Solid GRN	Device operational
Flashing RED/OFF	Recoverable fault • configuration incorrect • duplicate mac id (node address) check failed • node address switch changed • main program checksum failed • configured I/O size too large
Solid RED	Unrecoverable fault • terminator/end cap missing • connector/cable between modules missing/not connected • bad configuration memory • watchdog tripped

Status Indicators	Meaning
Network Status (NS)	
OFF	No power or no network access
Flashing GRN/OFF	On-line but not connected
Solid GRN	On-line and connected
Flashing RED/OFF	Connection time-out
Solid RED	Critical network failure
I/O Status (IO)	
OFF	No power or outputs off
Flashing GRN/OFF	Idle/program mode - one or more I/O modules in Idle Mode
Solid GRN	Device operational - all I/O modules in Run Mode
Flashing RED/OFF	Recoverable fault - one or more I/O modules may be in Fault Mode
Solid RED	Unrecoverable fault - one or more I/O modules may be in Fault Mode
Diagnostic Status (DIAG)	
OFF	No power or no diagnostics running
Flashing Amber	Main Program detected an error - number of flashes indicates the error
Flashing Green/OFF	Diagnostic self-tests are in progress
Flashing RED/OFF	Diagnostics found error - number of flashes indicates which test failed • One flash- RAM test failed • Two flashes- Boot program checksum failed • Three flashes- Main program checksum failed • Four flashes- Configuration checksum failed • Five flashes- Access to program or configuration failed • Six flashes - Backplane power fault (Series B only)
Solid RED	Watchdog tripped

Specifications

Specification	Value
Dimensions	118mm (height) x 87mm (depth) x 50mm (width) height including mounting tabs is 138mm
	4.65in (height) x 3.43in (depth) x 1.97in (width) height including mounting tabs is 5.43in
Approximate Shipping Weight (With Carton)	280g (0.61lbs)
Storage Temperature	IEC 60068-2-1 (Test Ab, Un-packaged Non-operating Cold), IEC 60068-2-2 (Test Bb, Un-packaged Non-operating Dry Heat), IEC 60068-2-14 (Test Na, Un-packaged Non-operating Thermal Shock): −40 to 85°C (−40 to 185°F)
Operating Temperature	IEC 60068-2-1 (Test Ad, Operating Cold), IEC 60068-2-2 (Test Bd, Operating Dry Heat), IEC 60068-2-14 (Test Nb, Operating Thermal Shock): 0 to 60°C (32 to 140°F)
Operating Humidity	IEC 60068-2-30 (Test Db, Un-packaged Non-operating Damp Heat): 5 to 95% non-condensing
Vibration	IEC60068-2-6 (Test Fc, Operating): 2g @ 10-500Hz
Shock	IEC60068-2-27: (Test Ea, Unpackaged Shock) Operating 15g Non-operating 30g
Emissions	CISPR 11: Group 1, Class A
ESD Immunity	IEC 61000-4-2: 6kV contact discharges 8kV air discharges
Radiated RF Immunity	IEC 61000-4-3: 10V/m with 1kHz sine-wave 80%AM from 30MHz to 2000MHz 10V/m with 200Hz 50% Pulse 100%AM at 900Mhz
EFT/B Immunity	IEC 61000-4-4: ±2kV at 5kHz on communication ports
Surge Transient Immunity	IEC 61000-4-5: ±2kV line-earth (CM) on shielded ports
Conducted RF Immunity	IEC 61000-4-6: 3Vrms with 1kHz sine-wave 80%AM from 10kHz to 80MHz 10Vrms with 1kHz sine-wave 80%AM from 150kHz to 80MHz

Specification	Value
Enclosure Type Rating	None (open-style)
Certifications (When Product is Marked)	c-UL-us UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada CE[1] European Union 89/336/EEC EMC Directive, compliant with: - EN 50082-2; Industrial Immunity - EN 61326; Meas./Control/Lab., Industrial Requirements - EN 61000-6-2; Industrial Immunity - EN 61000-6-4; Industrial Emissions C-Tick[1] Australian Radiocommunications Act, compliant with: - AS/NZS 2064; Industrial Emissions ODVA conformance tested to DeviceNet specifications

1   See the Product Certification link at http://www.ab.com for Declarations of Conformity, Certificates, and other certification details.

Input/Output Specifications

Specification	Value
Bus Current Draw (Maximum)	Series A 450mA at 5V dc (2.25W) Series B 500mA at 5V dc (2.5W)
Heat Dissipation	4.7W maximum
I/O Capacity	30 modules
Communication Rate	125k bit/s 250k bit/s 500k bit/s
Indicators	Module status - red/green Network status - red/green I/O status - red/green Diagnostic status - red/green
DeviceNet Power Requirements	24V dc (+4%) @ 90mA maximum, N.E.C. Class 2
DeviceNet Cable	Allen-Bradley part no. 1485C-P1-Cxxx. Refer to publication DN-2.5 for more information.
Power Supply Distance Rating	4 (Series A); 5 (Series B) (The adapter may not be more than 4 or 5 modules away from the power supply, depending on the Series.)
Isolation Voltage	Verified by the following qualification test: 710V dc, 1 minute
Vendor I.D. Code	1
Product Type Code	12
Product Code	69

Additional Resources

These documents contain additional information concerning related products from Rockwell Automation.

Resource	Description
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, http://www.ab.com	Provides declarations of conformity, certificates, and other certification details.

You can view or download publications at http://www.rockwellautomation.com/literature/. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

Product	Publication	Publication Number
Information on how to install and use your 1769-ADN Adapter	Compact I/O 1769-ADN DeviceNet Adapter Installation Instructions	1769-IN001
Installation guides for 1769 Discrete Compact I/O module 1769-IA8I	Compact 1769-IA8I Individually Isolated 120V ac Input Module	1769-IN012
Installation guides for 1769 Discrete Compact I/O module 1769-IA16	Compact 1769-IA16 120V ac Input Module Installation Instructions	1769-IN006
Installation guides for 1769 Discrete Compact I/O module 1769-OW8	Compact 1769-OW8 AC/DC Relay Output Module Installation Instructions	1769-IN003
Installation guides for 1769 Discrete Compact I/O module 1769-OW8I	Compact 1769-OW8I Individually Isolated AC/DC Relay Output Module	1769-IN005
Installation guides for 1769 Discrete Compact I/O module 1769-IQ16	Compact 1769-IQ16 24V dc Sink/Source Input Module Installation Instructions	1769-IN007
Installation guides for 1769 Discrete Compact I/O module 1769-OB16	Compact 1769-OB16 Solid State 24V dc Source Output Module Installation Instructions	1769-IN008
Installation guides for 1769 Discrete Compact I/O module 1769-OB16P	Compact 1769-OB16P Solid State 24V dc Source Output Module Installation Instructions	1769-IN052
Installation guides for 1769 Discrete Compact I/O module 1769-OA8	Compact 1769-OA8 100 to 240V ac Solid State Output Module Installation Instructions	1769-IN009
Installation guides for 1769 Discrete Compact I/O module 1769-OV16	Compact 1769-OV16 Solid State 24V dc Sink Output Module Installation Instructions	1769-IN010
Installation guides for 1769 Discrete Compact I/O module 1769-IQ6XOW4	Compact 1769-IQ6XOW4 24V dc Sink/Source Input AC/DC Relay Output Module Installation Instructions	1769-IN050
Installation guides for 1769 Discrete Compact I/O module 1769-IM12	Compact 1769-IM12 240V ac Input Module Installation Instructions	1769-IN011
Installation guides for 1769 Analog Compact I/O module 1769-IF4	Compact 1769-IF4 Analog Input Module Installation Instructions	1769-IN048
Installation guides for 1769 Analog Compact I/O module 1769-OF2	Compact 1769-OF2 Analog Output Module Installation Instructions	1769-IN049

Product	Publication	Publication Number
Information on how to install and use your 1769-IF4 and -OF2 modules	Compact 1769-IF4 and -OF2 Analog Modules User Manual	1769-UM002
Installation guides for 1769 Analog Compact I/O module 1769-IF4XOF2 * For DeviceNet Series B adapters only	Compact 1769-IF4XOF2 Combination Analog Module Installation Instructions	1769-IN057
Information on how to install and use your 1769-IF4XOF2 module	Compact 1769-IF4XOF2 8-Bit Low-Resolution Analog I/O Combination Module User Manual	1769-UM008
Installation guides for 1769 High Speed Counter module 1769-HSC * For DeviceNet Series B adapters only	Compact 1769-HSC High Speed Counter Module Installation Instructions	1769-IN030
Installation guides for 1769 Thermocouple/mV module 1769-IT6	Compact 1769-IT6 Thermocouple/mV Input Module Installation Instructions	1769-IN026
Information on how to install and use your 1769-IT6 module	Compact 1769-IT6 Thermocouple/mV Input Module User Manual	1769-UM004
Installation guides for 1769 RTD/resistance module 1769-IR6	Compact 1769-IR6 RTD/Resistance Input Module Installation Instructions	1769-IN027
Information on how to install and use your 1769-IR6 module	Compact 1769-IR6 RTD/Resistance Input Module User Manual	1769-UM005
Installation guides for 1769 power supplies	Compact 1769 Expansion I/O Power Supplies Installation Instructions	1769-IN028
Installation guides for 1769 cables	Compact I/O Communication Bus Expansion Cables Installation Instructions	1769-IN014
Installation guides for 1769 end caps and terminators	Compact I/O End Caps/Terminators Installation Instructions	1769-IN015
Information on how to install and use your 1769-IT6 module	Compact 1769-IT6 Thermocouple/mV Input Module User Manual	1769-UM004
Installation guides for 1769 RTD/resistance module 1769-IR6	Compact 1769-IR6 RTD/Resistance Input Module Installation Instructions	1769-IN027
Information on how to install and use your 1769-IR6 module	Compact 1769-IR6 RTD/Resistance Input Module User Manual	1769-UM005
Installation guides for 1769 power supplies	Compact 1769 Expansion I/O Power Supplies Installation Instructions	1769-IN028
Installation guides for 1769 cables	Compact I/O Communication Bus Expansion Cables Installation Instructions	1769-IN014
Installation guides for 1769 end caps and terminators	Compact I/O End Caps/Terminators Installation Instructions	1769-IN015

Notes:

Notes:

Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products.
At http://www.rockwellautomation.com/support, you can find technical manuals, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools. You can also visit our Knowledgebase at http://www.rockwellautomation.com/knowledgebase for FAQs, technical information, support chat and forums, software updates, and to sign up for product notification updates.

For an additional level of technical phone support for installation, configuration and troubleshooting, we offer TechConnect^{SM} support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit http://www.rockwellautomation.com/support/.

Installation Assistance

If you experience a problem within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your product up and running.

United States or Canada	1.440.646.3434
Outside United States or Canada	Use the Worldwide Locator at http://www.rockwellautomation.com/rockwellautomation/support/overview.page, or contact your local Rockwell Automation representative.

New Product Satisfaction Return

Rockwell Automation tests all of its products to help ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

United States	Contact your distributor. You must provide a Customer Support case number (call the phone number above to obtain one) to your distributor to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

Documentation Feedback

Your comments will help us serve your documentation needs better. If you have any suggestions on how to improve this document, complete this form, publication RA-DU002, available at http://www.rockwellautomation.com/literature/.